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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,208	10/23/2001	Bharath Rangarajan	E0819	9133

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EXAMINER	
LAZOR, MICHELLE A	
ART UNIT	PAPER NUMBER
1734	

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/000,208	RANGARAJAN ET AL.	
	Examiner	Art Unit	
	Michelle A Lazor	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-20* is/are pending in the application.

4a) Of the above claim(s) *14-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 5, 6, 8, 9, and 11 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al. (U.S. Patent No. 6371667) in view of Tateyama et al. (U.S. Patent No. 5965200) and Ravishankar (U.S. Patent No. 4803946).

Regarding Claims 1, 8, 9, and 13, Kitano et al. disclose a system comprising a reservoir (61) containing a resist solution (column 5, lines 24 – 32), and a nozzle (N_1) in fluid communication with the reservoir; wherein the nozzle is movable between first and second positions, while being capable of continuously dispensing liquid; in the first position, the nozzle is positioned to dispense liquid from the reservoir onto a substrate; and in the second position the nozzle is positioned to dummy-dispense liquid from the reservoir into a return line to mitigate residual occlusion accrual in the nozzle (Figures 24 – 27; column 9, line 66 – column 10, line 25). Kitano does not specifically speak to having the return line, which is considered to flow into a tank for storage, being in fluid communication with the reservoir (column 10, lines 47 – 54), and does not disclose a liquid trap for mitigating evaporation. However, Tateyama et al. disclose immediately recycling the surplus coating material along with fresh coating material (Figure 2; column 5, line 65 – column 6, line 11), and Ravishankar discloses a draining system (Abstract) that would inherently mitigate fluid evaporation by exposing only a small volume of

solvent in the exhaust system (Figure 4; column 3, lines 26 – 42) by using a p-trap in the drain or return line (column 4, lines 51 – 52). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to connect the return line or storage tank to the reservoir to streamline the process, increase efficiency, and use the resist coating solution as it is needed while operating the apparatus; and it would have been obvious to one of ordinary skill in the art to use a p-trap (a liquid trap) in the return line to minimize exposure of the resist solution (column 3, lines 31 – 34), thereby minimizing evaporation.

Regarding Claims 5 and 6, Kitano et al. disclose the nozzle to have a tip approximately in the shape of a truncated cone, wherein the tip has an orifice on the truncated end, and a circumference of the cone at its base that is considered to be at least about 10 times a circumference of the cone where it is truncated (Figure 4).

Regarding Claims 11 and 12, Kitano et al. disclose a pump that pumps fluid from the reservoir to the nozzle (column 5, lines 49 – 54), but do not disclose a fluid from the return line which is considered able to flow into the reservoir by the action of gravity. However, Tateyama et al. teach a fluid from the return line which is considered able to flow into the reservoir by the action of gravity (Figure 2; column 6, lines 3 – 11). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the action of gravity for the flow of the return line into the reservoir to minimize operational costs and avoid having to turn on and off a pump while changing substrates to be coated.

3. Claims 2, 3, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al., Tateyama et al. and Ravishankar as applied in Claim 1 above, in view of Akimoto et al. (U.S. Patent No. 5938847).

Regarding Claim 2, Kitano et al., Tateyama et al. and Ravishankar disclose all the limitations of Claim 1, but do not disclose the return line to have a coupling with a shape complementary to that of the nozzle and the nozzle which is fit into the coupling when the nozzle is in the second position. However, Akimoto et al. disclose the return line to have a coupling with a shape complementary to that of the nozzle and the nozzle which is fit into the coupling when the nozzle is in the second position (Figure 2; column 8, lines 55 – 67 and column 10, lines 37 – 44). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have a coupling with a shape complementary to that of the nozzle since it is a conventional design, and also, in order to have a close fit with the nozzle and avoid any contamination of the coating material dispensed through the nozzle while in the second position.

Regarding Claim 3, Kitano et al. disclose the reservoir to be below the return line (Figures 4 and 25 – 27).

Regarding Claims 10, Kitano et al., Tateyama et al. and Ravishankar disclose a pump that pumps fluid from the reservoir to the nozzle (Kitano et al: column 5, lines 24 – 32), but do not disclose the return line to be closed when the nozzle is in the first position. However, Akimoto et al. disclose the return line to be closed when the nozzle is in the first position (column 10, lines 45 – 54). Although the preferred embodiment discloses using a pump for the drain pipe, flow by action of gravity is not excluded. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to close the return line when the nozzle is in the first position to avoid contamination of the resist receptacle (51).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al., Tateyama et al. and Ravishankar as applied in Claim 1 above, in view of Tholome (U.S. Patent No. 4785760).

Kitano et al., Tateyama et al. and Ravishankar disclose all the limitations of Claim 1, but do not disclose the reservoir to have a port out which gas released from liquid in the reservoir is exhausted. However, Tholome discloses the reservoir to have a port out which gas released from liquid in the reservoir is exhausted (Figure 6; column 6, lines 36 – 52). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a reservoir with a port out wherein gas released from liquid in the reservoir is exhausted in order to facilitate filling of the tank (column 6, lines 38 – 39).

Response to Arguments

5. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., direct dispensing of resist liquid into the return line) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

6. Regarding the rejection of Claim 1 under 35 U.S.C. §103(a), the Examiner disagrees with the Applicant. As stated above, Kitano does not specifically speak to having the return line, which is considered to flow into a tank for storage, being in fluid communication with a reservoir. However, in light of Tateyama et al., one in the art would know to add storage means as claimed. In addition, while Kitano et al. does not specifically disclose continuously dispensing liquid, the apparatus is capable of functioning as claimed, and therefore renders the

claim unpatentable. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Although neither reference specifically speaks to the issue of occluded dispense head orifices (where by continuously dispensing liquid this may be avoided), the apparatus nevertheless is still capable of mitigating residual occlusion accrual in the nozzle as claimed.

In addition, Tateyama et al. is included to show immediate recycling of the surplus coating solution, and is not included to disclose using fast drying resist solutions or prevention of formation of resist residues on the dispense head. Rather Kitano et al. is disclosed to be capable of using a variety of resist solutions (column 5, line 65 – column 6, line 12) that are capable of preventing formation of resist residues on the dispense head, including fast drying resist solutions, and Tateyama et al. show how one would add recycling to the apparatus. Therefore one in the art would know to use a similar recycling system to that of Tateyama et al. in the apparatus disclosed by Kitano et al., in order to increase efficiency and use as much of the resist solution as possible.

1. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., opening and closing a return tube depending on whether a movable dispensing nozzle is present at the return tube) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In addition, as stated above, the

Tateyama et al. reference is used to show how one would add recycling to an apparatus such as the one disclosed by Kitano et al. And obviously, Kitano et al. does not use a vacuum to recapture fluid; therefore Kitano et al., Tateyama et al., and Ravishankar *would* be able to function with a capped return line or reservoir as discussed above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle A Lazor whose telephone number is 571-272-1232. The examiner can normally be reached on Thurs - Fri 5:45 - 4:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL
12/2/04

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